



**OIL & GAS DEVELOPMENT COMPANY LIMITED**  
**PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD**  
**SCHEDULE OF REQUIREMENT**

**Material :REPLACEMENT OF AGING NETWORK DEVICES AND RELATED INFRASTRUCTURE**

**Due Date:**

**Tender Enquiry No: PROC/LH/PT/SYS-17674**

**Bid Bond Value : RS. 6,461,000/-**

**Attachment(if any) : YES(21 PAGES)**

**EVALUATION WILL BE CARRIED OUT ON FULL**

Sr No	Description	Quantity	Make/Brand offered	Unit	Unit Price (PKR) Inclusive Of All Taxes Except GST	Unit Price (PKR) Inclusive of GST	Total Price (PKR) Inclusive of GST	Delivery Period Offered	deviation from Tender Spec. If Any
1	HYPER-CONVERGED INFRASTRUCTURE HARDWARE WITH PRIVATE CLOUD CAPABILITIES (DETAILED SPECIFICATION ATTACHED WITH TERMS AND CONDITIONS) AS PER ANNEXURE-I	1		Number					
2	CORE ROUTERS (DETAILED SPECIFICATION ATTACHED WITH TERMS AND CONDITIONS)AS PER ANNEXURE-I	2		Number					
3	CORE SWITCH(DETAILED SPECIFICATION ATTACHED WITH TERMS AND CONDITIONS)AS PER ANNEXURE-I	2		Number					
4	INTERNET FIREWALLS (NEXT GENERATION HARDWARE BASED) (DETAILED SPECIFICATION ATTACHED WITH TERMS AND CONDITIONS)AS PER ANNEXURE-I	2		Number					
5	HARDWARE BASED REPORTING SOLUTION FOR NGFW (DETAILED SPECIFICATION ATTACHED WITH TERMS AND CONDITIONS)AS PER ANNEXURE-I	1		Number					
6	ACCESS SWITCHES (DETAILED SPECIFICATION ATTACHED WITH TERMS AND CONDITIONS)AS PER ANNEXURE-I	18		Number					
7	HARDWARE BASED NGN DATA CENTER FIREWALLS (DETAILED SPECIFICATION ATTACHED WITH TERMS AND CONDITIONS)AS PER ANNEXURE-I	2		Number					
8	NETWORK ACCESS CONTROL SOLUTION WITH REDUNDANCY (DETAILED SPECIFICATION ATTACHED WITH TERMS AND CONDITIONS)AS PER ANNEXURE-I	1		Number					
9	RACK HARDWARE (DETAILED SPECIFICATION ATTACHED WITH TERMS AND CONDITIONS)AS PER ANNEXURE-I	1		Number					
10	INSTALLATION, CONFIGURATION, MIGRATION AND TESTING SERVICES (DETAIL MENTIONED IN ATTACHED TERMS AND CONDITIONS)AS PER ANNEXURE-II	1		Number					
11	SUPPORT SERVICES AND WARRANTY FOR 03 YEARS (DETAIL MENTIONED IN ATTACHED TERMS AND CONDITIONS)AS PER ANNEXURE-II	1		Number					
12	TRAINING (DETAIL MENTIONED IN ATTACHED TERMS AND CONDITIONS)AS PER ANNEXURE-II	1		Number					

**Special Note:**



**OIL & GAS DEVELOPMENT COMPANY LIMITED**  
**PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD**  
**SCHEDULE OF REQUIREMENT**

- The prospective bidders also download the master set of Tender Document
- The prospective bidders may keep in touch with OGDCL web site for downloading the clarifications/amendments (if any) issued by OGDCL.
- DELIVERY TERM: WITHIN 80 DAYS FOR DELIVERY OF HARDWARE AND 120 DAYS FOR COMPLETION OF PROJECT. PAYMENT TERMS: 40% AFTER DELIVERY OF HARDWARE (EXCLUDING SUPPORT SERVICES) AND 60% AFTER COMPLETION OF PROJECT.

Discount (if any) shall only be entertained on Schedule of Requirement of Bidding Document (Financial Proposal). If the discount is mentioned elsewhere in the bid, the same shall not be entertained.

**Mandatory Checklist**

Please confirm the compliance of the following mandatory information along with the bid(s) (failing which bids(s) will not be accepted)



**OIL & GAS DEVELOPMENT COMPANY LIMITED**  
**PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD**  
**SCHEDULE OF REQUIREMENT**

Documents	To be Attached with the Technical/Financial Bids	Compliance	
		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Original Bid Bond	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Copy of NTN Certificate	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Copy of GST Certificate	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Confirmation that the Firm is appearing on FBR's Active Taxpayer List	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly signed and stamped <b>Annexure-A (Un-priced)</b>	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-B</b>	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-D</b>	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-L</b> on Company's Letterhead	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly signed and stamped <b>Annexure-M</b> on Company's Letterhead	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly signed and stamped <b>Annexure-N</b> on Non-Judicial Stamp Paper duly attested by Notary Public	Technical Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-A (Priced)</b>	Financial Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-C</b>	Financial Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Duly filled, signed and stamped <b>Annexure-E</b>	Financial Bid	Yes <input type="checkbox"/>	No <input type="checkbox"/>



**OIL & GAS DEVELOPMENT COMPANY LIMITED**  
**PROCUREMENT DEPARTMENT (LOCAL), ISLAMABAD**  
**SCHEDULE OF REQUIREMENT**

For the Vendors/Contractors who opt to submit Bank Draft/Call Deposit/Pay order against Bid Bond/Performance Bond, our Accounts Department has finalized an arrangement for online payment to such Vendors/Contractors, which will be processed through (IBFT & LFT) for which following information is required:

i.	IBAN No. (International Bank Account Number 24 Digits)	
ii.	Vendor Name as per Title of their Bank Account	
iii.	Contact No.of Company's CEO/ Owner (Mobile & Landline)	
iv.	Bank Name.	
v.	Bank Branch Name and Code	

Name, Sign and Stamp of the authorized official of the Bidder(s) \_\_\_\_\_

**Replacement of Aging Network Devices & Related  
Infrastructure**

*Terms & Conditions*

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*Note: Bidders are requested to read this document carefully and provide complete information required in this T&C. All information required in the Vendor Qualification & Professional Staff details must be provided. OGDCL reserves the right to reject Proposals with in-complete or partial information.*

## **OVERVIEW**

Oil and Gas Development Company Ltd (OGDCL) is Pakistan's leading National E&P sector company, having operations at remote locations and fields in all the four provinces. The detailed information about the Company can be obtained from its website [www.ogdcl.com](http://www.ogdcl.com)

To cope with the growing business operations, the Company intends to engage a vendor for IT Infrastructure Technology Refresh to bring both simplicity and productivity together with providing an integrated and secure automation environment. To achieve this objective, the existing aging network infrastructure needs to be replaced. This replacement exercise will also cover migration of configurations from old infrastructure to new infrastructure.

This Infrastructure Replacement project will be awarded on a turnkey basis, where the selected firm will be responsible for supply, installation, configuration and deployment of the new network devices and related infrastructure.

Vendors having required expertise, resources and similar work experience are invited to submit their proposals as per detailed requirements given in this T&C.

## **INTRODUCTION TO WORK**

Bids are invited for Supply of hardware, licenses, installation, configuration, & Implementation of the following components:

1. IT Infrastructure compute
2. Data Centre and campus network
3. Implementation and migration services

## **PROPOSALS**

The firms are required to send Financial Proposal as well as Technical Proposal for this project in separate sealed envelopes.

## **TECHNICAL PROPOSAL**

Technical Proposal should be submitted covering the following details;

- i. Brief about the Firm, its support facilities with years of service in Pakistan.
- ii. Details about the hardware solution provided as per Annex I
- iii. Details of services and training as per Annex II
- iv. Expertise available with brief CVs of the professionals within Pakistan as per Annex III
- v. Details regarding Mandatory Requirements & Technical Evaluation Criteria as per Annex- IV
- vi. Experience of working in large public sector organization.
- vii. Provide the detailed mechanism of annual technical support.
- viii. Schedule of Supply, installation, configuration, testing and commissioning of the proposed solution.

**FINANCIAL PROPOSAL**

Financial Proposals should be submitted as per Annexure -A (SOR).

**DURATION OF PROJECT:**

The delivery of hardware should be made within 80 (Eighty) days and project should be completed in 120 days (One Hundred and Twenty) after issuance of Purchase order. Bidder is required to furnish fortnightly progress reports of the activities under taken in due course of time. The bidder shall submit detailed project plan defining activities, sub-activities etc. in the form of Gantt chart.

**PAYMENT TERMS:**

- The 40% of total amount (excluding support services cost) will be paid after delivery of hardware, while remaining 60% payment will be made after completion of project including Installation/Configuration . Testing & Training.
- For Support services the payment will be made on quarterly bases, after performance of services. The support period will be started after completion/signing off the project.

**PROJECT DELIVERABLES:**

1. New Topology Detailed Diagram/Network Diagram
2. Documentation for installation/configuration related to complete project. All the documentation should be comprehensive and well-structured to be submitted both soft and hard copy format. It should include but not limited to
  - a. Detail Project Plan/Project Schedule
  - b. Configuration Manual
  - c. Operation Manual
  - d. SOPs for all installation & configurations
  - e. Standard Tagging/Labeling
  - f. Training manuals
  - g. Migration Plan
  - h. Enterprise level Backup Mechanism as mentioned in Annex-II
  - i. Reconfiguration of IT-Operations dashboard after implementation of new devices.
  - j. User Manual
  - k. Third party Test report

### **IMPLEMENTATION & TRAINING:**

The selected bidder will be responsible for complete implementation and deployment of the new infrastructure.

The bidder will share a complete migration plan for shifting of all existing physical & virtual infrastructure to newly deployed infrastructure.

The Bidder will also provide user and administrator level trainings (pre and post deployment) leading to certification by authorized trainers for nominated person/employee of the company.

The bidder will also be responsible for technology transfer of the newly deployed infrastructure for any future enhancements/modification/customization etc.

### **TESTING OF NEW & MIGRATED INFRASTRUCTURE:**

In testing phase, the bidder is required to test new and migrated infrastructure from every aspect of testing to ensure that all devices works as committed & meets all available standards.

### **THIRD PARTY TESTING:**

The bidder will also be responsible for third party testing for implementation of project as per scope of work and ISO standards for information security, which is to be carried out by authorized information security service provider before/after deployment. The firm for conducting testing will be selected with mutual consent and cost will be paid by OGDCL.

The Bidder will submit a comprehensive report on Testing.

### **DEPENDENCIES & RISKS:**

The bidder is required to submit dependencies & risks involved in project proposal. The bidder can visit the existing data centre of OGDCL before submission of proposal.



**Annex I**  
**Hardware Specifications**

**TECHNICAL & FUNCTIONAL REQUIREMENTS**

The proposed solution should meet the following minimum specifications:

**Server Hardware:**

The server hardware is to be proposed for a private cloud implementation and should be able to provide infrastructure services to multiple departments within OGDCL.

**1) Hyper-Converged Infrastructure Hardware (Qty 1):**

The solution should be based on a hyper-converged infrastructure with the following specifications:

- 224 physical cores. Intel Xeon Platinum 8176. 2.1GHz or higher
- 2.048GB RAM
- Min 8TB all flash (or SSD) with minimum 100.000 IOPs
- No more than 6U of rack space
- 6 x 10GBe per node
- Dual redundant 40GBe fabric switches with min 48 ports per switch
- Fully redundant integrated network
- Built in HA cluster with minimum 8 highly available nodes
- Cluster to be scalable to minimum 78 nodes
- Full N+1 redundancy throughout
- iSCSI support for external storage connectivity
- All NVMe SSD support required
- Independent expansion of computing node with no increase on the number of storage software license
- Support for any two disk failures with no influence on service
- The system is compatible with mainstream virtualization software such as VMware and KVM.
- All disk hot pluggable solution
- Loads of servers should support dynamic power management

**Proposed HCI must have following Private Cloud Capabilities:**

The solution should include an easy to consume, highly reliable, elastic and secure cloud platform to deliver IT as a utility to multiple departments within OGDCL.

- The proposed solution must have a Cloud Management Platform.
- The proposed solution must have the capability of automatic provisioning/de-provisioning of VMs and its resources
- Private cloud should be dynamically scalable just by addition of nodes
- The compute and storage required to run the workload must be managed with the Cloud Management platform.

- The solution to provide per VM/per Workload performance controls by way of per VM Quality of Service (QoS)
- The cloud platform must allow for the creation of a service catalogue library of available IT services, applications, and VMs
- Each service catalogue item should allow for the creation of multiple VMs to support multi-machine applications
- The deployment of all service catalogue items must be automated and delivered through self-service via portal
- The proposed cloud platform must allow visibility and monitoring of virtual machines in a unified management interface
- The proposed cloud platform must integrate to a directory service for authentication
- The proposed solution must support either or all the major virtualization vendors i.e. VMware ESX or KVM
- The proposed solution must support a Web-enabled management interface
- Proposed solution should have basic SDN capabilities including:
  - Network isolation and segmentation in a multi-department environment using subnets and security groups
  - Network Address Translation (NAT) for public/private IP separation
  - Inbound and Outbound Firewall rules at virtual network edges
  - Full integration with HCI physical switches
- Vendor to provide virtualization software for the provided hardware nodes. Virtualization software should include a hypervisor and a management server
- The solution should include at least three years of remote managed support for the implemented software stack

Note: OGDCL intends to use existing operating system licenses in the migrated environment.

## Network Hardware:

### 2) Core Routers: (Qty 2)

- Proposed routers form factor of not more than 1 RU.
- Proposed routers should have multi core processors for high speed WAN Connections
- Should support Service Level Agreements (SLAs) or equivalent for the monitoring of the WAN links.
- Should have 4 x 10/100/100 LAN/WAN or higher built-in ports.
- Proposed routers must have 2 expansion slots for future provisioning.
- Proposed router must support a throughput of 2 Gbps or higher based on RFC2544 test methodology.
- Proposed routers must support 4GB RAM or higher.
- Proposed router average power consumption should not more than 250W.
- Proposed router must support both type of supplies AC and DC.
- All field replaceable units in the core router must be hot-swappable.
- Proposed router should support features be able to act SD-WAN Hub functionality.
- Core router should have a separate Control and Data Plane.
- Core routers to be configured in a 2-node cluster.
- Core routers must support the following Multicast protocols.
  - IGMPv1/v2
  - PIM SM/ DM/SSM
  - Distance Vector Multicast Routing Protocol (DVMRP)
  - Multicast Source Discovery Protocol (MSDP)
  - Reverse Path Forwarding (RPF)
- Core router must support Layer 3 routing protocols including
  - RIP
  - OSPF
  - IS-IS
  - BGP
  - PBR and APBR
- Core router must support Over lay features like
  - GRE
  - GRE over IPsec
  - IPsec
  - MPLS
- The proposed device must support routing and firewalling feature.
- Proposed hardware should support QoS following features
  - WRED.
  - Egress interface shaping
  - QOS over VPN tunnel interface
- Proposed router must comply with following standards
  - FCC Class A compliance
  - ROHS 2.0

### 3) Core Switches (Qty 2):

Following are the mandatory specs for the core switch

- Proposed Core Switch should be modular with six slots or higher.
- Core Switch must support high availability and there shouldn't be any single point of failure.
- Proposed Chassis must support throughput of 30Tbps or higher.
- Proposed switches must support per slot throughput of 5T or higher
- Proposed Chassis must support architecture like MLAG, IP-Fabric and Leaf-Spine.
- Core Switches must have N+1 redundant power supplies, Supervisors/RPs and fabric cards
- Core Switches must support SDN Feature set and should be able to get managed and provisioned by SDN Controller and in the absence of the SDN controller.
- Proposed Switches must support Layer 2 over Layer 3.
- Proposed Switches must support features like VXLAN, VTEP etc.
- Proposed Switches must support Layer 2/3 VXLAN gateway
- Proposed switches must support EVPN-VXLAN for DCI.
- Core switch supports architecture where packets are queued on ingress during congestion with no head-of-line blocking.
- The proposed switch must integrate with VMware NSX, Open Contrail, Puppet, OpenStack, and Cloud Stack.
- Proposed Hardware must support IPv4 and IPv6 in hardware.
- Proposed Switch must support features like NSF, ISSU, etc.
- Proposed Switches must support 10, 40 and 100Gbps line cards in non blocking fashion.
  - 300x1/10G SFP/SFP+ ports or higher (80x10G SFP+, 200x1Gb GLCT)
  - Core Switch should support 40G/100G line cards as well (future use)
- Proposed Switch must support all layer 3 protocols including but not limited to the following
  - OSPF
  - IS-IS
  - BGP
  - PBR
  - MPLS
- Core switch should support the following scale:
  - IPv4 entries = 1M or higher
  - MAC Address Entries = 1M or higher
  - SPAN Sessions = 24 or higher
  - Multicast Routes = 128K or higher
  - VRF instances = 1000 or higher
  - Proposed Switches must support ether channel links of 32 or higher
  - Proposed Switches must support Equal Cost Multi Pathing 32 or higher
- Must Support L3 VPNs and layer 2 extensions like EoMPLS
- Proposed switch should have built-in security features like
  - Port Security
  - Rate Limiting
  - VLAN ACLs
  - uRPF for IPv4 and IPv6

- IPv4 and IPv6 in tunneling
- Should support redundant AC and DC Power Systems
- Proposed switch must have local references in country or in the region.
- Proposed Switch must have active roadmap of next 5 years at least
- Proposed switches will be configured in a 2-node cluster
- Proposed Switches should be fully populated with 10G and 1G optics

**4) Internet Firewalls (Next Generation Hardware Based) (Qty 2)**

- Proposed firewall must have Application aware/control throughput of 14Gbps or higher
- Proposed firewall must have Threat prevention/protection throughput of 4Gbps or higher
- Proposed firewall must have Intrusion Prevention System(IPS) throughput of 6Gbps or higher
- Proposed firewall must have IPsec VPN throughput of 25 Gbps or higher
- Proposed firewall must have Hard Drive of 255 GB or higher
- Proposed firewall must have Network Interfaces
  - 2x 10 Gbps SFP+
  - 15x 1 Gbps SFP
  - 15x 1 Gbps RJ45
  - or more
- Proposed firewall must have Multi-mode (short range) fiber SFPs
- Proposed firewall must have ASICs based hardware architecture with dedicated processors.
  - Dedicated Network Processor for Anomaly Based Intrusion Prevention, traffic shaping and queue prioritization
  - Dedicated Content Processor for offloading encryption and decryption
- Proposed firewall must have Concurrent/Maximum Sessions of 10.5 Million or higher
- Proposed firewall must have High Availability i.e Active-Active and Active-Standby
- Proposed firewall must have Dual / Redundant (Must be hot swappable) Power Supply
- Proposed firewall must have advanced Web URL filtering with automatic live updates through cloud service and should be part of proposed solution
- Proposed firewall must have New Sessions/Second of 275,000 or more
- Proposed firewall must have Concurrent SSL VPN 200 Users
- Proposed firewall must have SSL Inspection Throughput of 4Gbps or more
- Proposed firewall must have ICAP Protocol Support
- Proposed firewall must have Anti-Virus Scanning support in Proxy Mode Traffic
- Proposed firewall must have Link load balancer & Server Load Balancer Support
- Proposed firewall must have Inbuilt 2 factor authentication services Support
- Proposed firewall must have SSO Agent Based Single-Sign-On Support
- Proposed firewall must have Explicit Forward Web Proxy Support
- Proposed firewall must have High Availability Support with any port to be used as monitoring port
- Proposed firewall must have Static Routing Support
- Proposed firewall must have Policy based Routing Support
- Proposed firewall must have Dynamic Routing (RIP, OSPF, BGP) Support

- Proposed firewall must have Inbuilt Wireless AP controller (of same manufacture) for BYOD
- Proposed firewall must be present in Leader Quadrant Gartner report of Following Category 1) UTM Firewall and 2) Enterprise Firewalling

**Proposed NG Firewall must have following features with Cloud Base Anti Malware /Sandboxing solution**

- Cloud Sandboxing should be integrated with NGFW Firewalls
- It should support File Based Detection
- Should support URL Detection based on Host traffic to Malicious sites
- Cloud Sandboxing should support Anti-Virus Scanning, Cloud Query mechanism, Code Emulation, Virtual Sandboxing environment and be able to detect the callbacks
- Should support file type when integrated with NGFW: .tar, .gz, .tar.g, .tgz, .zip, .bz2, .tar.bz2, .bz, .tar.Z, .cab, .rar, .arj,
- Should support executables: .exe, .dll, PDF, Windows Office, Javascript, .avi, .mpeg, mp3, mp4
- Should support Inspected Protocol types when integrated with NGFW: HTTP/S, SMTP/S, POP3, IMAP, MAPI, FTP
- Should support providing alerts with summary information including the Source & Destination, Protocol and Filename
- Logging of suspicious & malicious activity should be retained for at-least a period of 10 months
- The Cloud sandboxing solution should accept 45 Submissions / Minute and at-least 70000 Submissions / Day for scanning
- The solution should support in chosing the content need to be submitted to Cloud Sandboxing
- The solution should support on-demand file submission for analysis in cloud
- The solution should support File Submission Summary Web View
- The solution should support Filter by Rating (Malicious, Suspicious - Low, Medium, High Risk & Clean)

**5) Hardware Based Reporting Solution for NGFW (Qty 1)**

- Proposed firewall must have Logging View. The proposed solution should be able to provide synthetic view of logging activity in a managed environment. The proposed solution should also provide NOC & SOC view to provide Monitoring and control over network
- Proposed firewall must have Traffic visibility. The proposed solution should support visibility on the traffic, the applications, the threats and the most viewed websites
- Proposed firewall must have Log searching. The proposed solution should support log view with searching options
- Proposed firewall must have Event manager. The proposed solution should support Event manager and Viewer with drill down capabilities
- Proposed firewall must have PCI DSS reports. The proposed solution should be able to produce reports based on PCI DSS criteria
- Proposed firewall must have Report generation. Reports can be generated instantly or via schedules from external reporting appliance
- Reporting appliance should have a log rate of 5000 logs/sec or more for sustained Analysis

- Proposed firewall must have Inbuilt Storage. The device should have 5 TB or more usable storage after forming RAID10
- Proposed firewall must have Per day logs capacity. The reporting appliance should support 180 GB or more logs per day
- Proposed firewall must be Third party certified. The proposed solution should be FCC Part 15 Class A, C-Tick, VCCI, CE, UL/cUL, CB Certified
- Proposed firewall must have Network interfaces. The proposed solution should support 4x GE RJ45 Interfaces
- Proposed firewall must have Built-in reports. The proposed solution should support at least 28+ built-in templates for reports in HTML, CSV, PDF and XML format
- Proposed firewall must have Charts for reporting. The proposed solution should support at least 300+ built-in charts for custom based reports
- Proposed firewall must have Archived logs. Retrieve archived logs to perform analytics against historic data for forensic analysis
- Proposed firewall must have Alert notifications. Should have Automated alert notification for issues, problems and attacks

#### 6) Access Switches (Qty 18)

- Access Switches must support 48x1G as access ports and redundant 10G uplinks
- Should support IPv4 and IPv6
- Should support QOS
- Should support Security features like
  - IEEE 802.1x
  - 802.1br
  - Dynamic Host Configuration Protocol (DHCP) snooping
  - IP Source Guard
  - Control plane protection
- Should support Layer 2 and Layer features
- Should support stacking features of up to 8 or higher switches
- Access Switches must support redundant power supplies
- Each switch must have 2 x 10G uplink ports
- Each switch must have 2x10G Short Reach Optics

#### 7) Hardware Based NGN Data Center Firewalls (Qty 2)

- Proposed firewall must have the following scale:
  - Firewall (Multiprotocol throughput): 20G or higher
  - Application Firewall: 15G or higher
  - IPS: 10G or higher
- Proposed firewall must support concurrent sessions 5M or higher
- Proposed firewall must support CPS of 100K or higher
- Proposed firewall must support VPN throughput of 5Gbps or higher

- Proposed firewall should be able to integrate with third party threat defense systems.
- Proposed firewalls must support API for event output to SIEM.
- Proposed firewall must have its own GUI for management.
- Proposed firewall must support Restful APIs
- Proposed firewall must support Advanced Malware Protection
- Core firewall should have mechanisms to detect and block DDoS attacks
- Proposed firewall must support ISSU.
- Proposed firewall must have separate control and forwarding plane.
- Proposed firewalls will be configured in active/active configuration
- Proposed firewalls should have 8x1/10G (4x1 SFP and 4x10G SFP+) Short Range SFPs.
- Proposed firewall form factor should be 1 RU
- Proposed firewall must have a dedicated HA and OOB management ports.
- Proposed firewall must have a console and USB 2.0 interface.
- The IMIX throughput of the proposed firewall should be increased with an additional license.
- The proposed firewall should support 150 or more granular and extensive URL Filtering Categories.
- The proposed firewall should support advanced scripting languages like on box python.
- The proposed firewall should support technologies like on box yang based models. custom yang and open config.
- The proposed firewall should support common IT Automation tools like Ansible, Chef, Puppet, and Salt event based infrastructure.
- The proposed firewall should support off-box automation and must be programmable via Netconf/XML

#### **8) Network Access Control Solution (With Redundancy)**

A hardware appliance-based solution is required for 2000 users (Both Internal & External)

The systems should support below

- Authentication with local credentials and association with the AD domain server, LDAP server, and third-party RADIUS server for identity authentication, also support association with CA/USB key and RSA servers.
- Role management for users and profiling
- User group management in a tree structure similar to the organization structure on the live network, facilitating management
- User synchronization based on the OU, user group, and account attributes and dynamic role matching role matching to map attributes to roles and authorize users by role. Including binding between single account and multiple roles.
- User group management in a tree structure similar to the organization structure on the live network, facilitating management
- Automatic/Manual grouping based on the terminal type identification result.
- Terminal type identification through SNMP, User-Agent, DHCP, and MAC OUI to identify terminal types, operating systems, and vendors of wireless terminals
- Load balancing during authentication using AD/LDAP accounts with survival mechanism



- Wizard oriented guest management function deployment and implementation
- Allows system administrators and guest administrators to manually create guest accounts one by one or in a batch.
- Allows guests to apply for temporary accounts on the self-service Portal page. The account application is approved by the administrator or does not need to be approved.
- Supports interconnection with social media, such as Facebook, Twitter, and Google+. Guests can use the social media accounts to access the Wi-Fi network.
- Supports public QR codes and approval QR codes. A public QR code allows for group-based user management to grant different rights. An approval QR code can be used to audit user registration information.
- Allows administrators to set password generation policies and validity periods for guest accounts, and export and print guest accounts.
- Allows guest administrators to use local accounts, accounts synchronized from the AD/LDAP server, or non-synchronized accounts.
- Supports multiple authentication protocols, including PAP, CHAP, EAP-MD5, EAP-PEAP-MSCHAPv2, EAP-TLS, EAP-TTLS-PAP, and EAP-PEAP-GTC.
- Supports authorization management based on the user/user group/role, access location, terminal type, terminal group, access time, and access mode.
- Supports fast authorization by security groups in different scenarios. With the network topology taken into consideration, administrators can rapidly set access control policies based on the user role, access time, access location, terminal type, and access mode.
- Delivers security group policies to associated devices on the entire network to ensure that users obtain the same access control policies regardless of the access position. The system also supports incremental policy synchronization and synchronization status display.
- Allows administrators to set network bandwidth and service priorities for Internet access based on users to ensure experience of specified users.
- Allows administrators to define page switching policies after authentication success. Users can be redirected to the original page and forcibly switched to a specified page.
- Supports clients of the Windows XP, Vista, 7, 8, 8.1, and 10 operating systems.
- 3 years updates/ software support verifiable from principal.

9) **Rack Hardware:**

- Industry standard 19" rack 42U
- 4 x PDUs

**Annex II**  
**Support Services & Warranty**

**Warranty:**

All quoted hardware must have 03 years complete warranty including parts and labour, warranty period will be started after the installation, commissioning and testing.

**Software Licenses/Subscriptions:**

All quoted software licenses/subscriptions should be valid for 03 years.

**Services:**

The following services shall be provided and the selected firm will also be required to provide maintenance and support services for a period of 3 years, extendable to further 02 years on annual basis with mutual consent:

**1. Server Installation, Migration services & Backup/Restore Mechanism:**

- a. Installation, configuration and customization of provided server hardware
- b. Installation and configuration of virtualization software
- c. Review and planning of existing servers at OGDCL
- d. Creation of virtual machines as per the planning exercise
- e. Seamless P2V migration of OGDCL all physical Servers with no down time during business hours
- f. Configuration of new and existing servers in a virtualized cluster
- g. Testing and hand over to the OGDCL staff
- h. The selected firm will be responsible for developing an enterprise level backup and restore mechanism for Email, Microsoft Share Point Servers, Maximo Servers, Medical Management System Servers, Oracle, SQL Servers using existing Tape Library TS-3100/3200 and Backup Exec 3600 Device. The firm will also provide a single dash board for monitoring & management of all these backups.

**2. Network Services:**

- a. Installation, configuration and customization of provided network hardware
- b. Provisioning of any required cabling as required
- c. Migration of existing OGDCL network to the new devices in a phased yet seamless manner with no down time to business services during working hours
- d. Configuration of security policies as per existing network
- e. Re-configuration of OGDCL SIEM solution to cater for newly deployed network devices

- f. Configuration of network devices including routers and firewalls in a cluster configuration
- g. Replacement of existing access switches with newly supplied access switches
  - i. Password age, length etc.
  - ii. Device Security such as enforce encryption, block external SD card, allow install of non-windows storage apps, allow store auto to update etc.

**3. Training Services:**

- a. Vendor to provide administrator level training for 06 OGDCL IT staff for each of the following areas:
  - i. Server virtualization
  - ii. Network administration
  - iii. Firewall administration

**Annex III**

**Professional Staff Details**

The bidder shall provide Resumes of the following staff:

<b><u>S. No</u></b>	<b><u>Role</u></b>	<b><u>Experience (Yrs)</u></b>	<b><u>Certification</u></b>	<b><u>No.</u></b>
1	Network Specialist	10	CCIE or equivalent	01
2	DC Virtualization Specialist	5	VCP or equivalent	01
3	Project Manager	5	PMP	01
4	Microsoft Professional	5	MCSA/MCP	01
5	Technology Architect	10	The Open Group or equivalent	01
6	Support Engineers	5	Any relevant	05

## Annex IV

### Mandatory Requirements & Technical Evaluation Criteria

**Note:** Bidders are advised to carefully read the Mandatory Requirements, Evaluation Criteria and provide complete information in each category in their Technical Proposal. Incomplete or partial information will not be weighed up.

#### **Mandatory Requirements**

1. SECP Registration of Partnership/Company.
2. NTN and GST Registration Certificates.
3. Presence at Islamabad/ Rawalpindi of the bidder or subcontractor.
4. Manufacturer authorization letter for each quoted Hardware items for the project duly on the letter head of the OEM signed and stamped by the authorized official of the OEM.
5. Proper Agreement for subcontracting, if intends to subcontract the Project duly on non-judicial stamp paper attested by Notary Public.
6. In-service date of equipment and identify both End of service and End of life.

**Technical Evaluation Criteria**

<b>Sr. #</b>	<b>Description</b>	<b>Allocated Score</b>	<b>Remarks</b>
1	<b>Company profile</b> Years of experience in infrastructure deployment.	25	Firm having 5 year experience will get 20 marks. For each additional one year experience, 01 mark will be given, up to maximum of 25 marks.
2	<b>Average Turnover for last 05 Years Pak Rupees in Million</b> Please enclose last 05 years audited financial statements	15	Firm with average turnover of Rs. 350 Million will get 11 marks. For each additional 50 Million turnover, 01 mark will be given, up to maximum of 15 marks.
3	<b>Professional Experience</b> List of Similar Nature Projects (at least 5) including supply of hardware and support services. Valid documentary proofs/Certificates must be attached	35	Firm having 5 projects will get 25 marks. Firms having more than 5 projects will get prorated score, up to maximum of 35 marks
4	<b>Project team and Certified staff</b> for project design and delivery as under: <ul style="list-style-type: none"> <li>- 1 x Cisco certified CCIE or equivalent</li> <li>- 1 x VMWare certified VCP or equivalent</li> <li>- 1 x Microsoft certified MCSA</li> <li>- 1 x Microsoft certified MCP</li> <li>- 1 x PMP certified project manager</li> <li>- 1 x Open Group certified Architect or equivalent</li> </ul>	25	Bidder with full compliance will get 25 points, other will get prorated score. (10+3+3+3+3)
	<b>Total Score</b>	<b>100</b>	
	<b>Qualifying Score</b>	75	70% marks are mandatory for each above Serial No

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